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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Munetaka TAKEUCHI, et al.

Serial No. 08/889,440   Group Art Unit: 2123

Confirmation No. 3473

Filed: July 8, 1997   Examiner: H. Jones

For: APPARATUS AND METHOD FOR SIMULATING PHENOMENA OF A PARTICLE OF
        SUBSTRATE PARTICLES AND ADSORBATE PARTICLES

CORRECTED APPENDIX TO APPEAL BRIEF

MAIL STOP **APPEAL BRIEF PATENTS**
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

    Appellants are hereby filing a Corrected Appendix to the Appeal Brief that was filed on October 20, 2003 in response to the Order Returning Undocketed Appeal to Examiner (Order) that was mailed by the U.S. Patent and Trademark Office on June 1, 2004 in the above-referenced application. The Order required correction to claim 24 by providing that in claim 24, line 4, after "information" delete "--and--," and delete "include" and replace with "--includes--." It is understood, that claim 24, line 4, should be changed from "can include" to --includes--, consistent with the Amendment of August 22, 2002. Further, a consistent correction change is made to other independent claims 1, 16, 20 and 23. Therefore, entry of the Appendix to the Brief as corrected herein is respectfully requested.

Respectfully submitted,
STAAS & HALSEY LLP

Date: _September 10, 2004_   By: _____
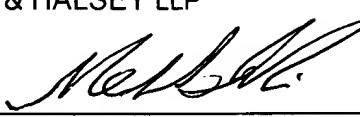
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APPENDIX TO APPEAL BRIEF (37 CFR § 1.192(C)(9)) (AS CORRECTED)

1.   (PREVIOUSLY PRESENTED) An apparatus for simulating phenomena of a particle formed of adsorbate particles and substrate particles, comprising:

a kinetic condition setting unit which sets information for defining a plurality of generation periods and a corresponding number of adsorbate particles to be generated during each generation period wherein the information includes a position of a corresponding emission source, a temperature, a chemical composition of the particle, a region, a physical condition, a velocity of each atom forming the particle, and a direction; and

a particle motion computing unit which generates the adsorbate particles in accordance with the information set by the kinetic condition setting unit and computes motion of the generated adsorbate particles, to simulate phenomena of said particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source wherein

for each adsorbate particle, the kinetic condition setting unit sets a region indicating a position of the corresponding emission source, and

the particle motion computing unit generates each adsorbate particle in accordance with the position of the corresponding emission source.

2.   (CANCELED)

3.   (PREVIOUSLY PRESENTED) An apparatus as in claim 1, wherein before generating the adsorbate particles, the particle motion computing unit generates the substrate particles.

4.   (ORIGINAL) An apparatus as in claim 1, further comprising:
a display which allows a user to enter the information set by the kinetic condition setting unit.

5.   (PREVIOUSLY PRESENTED) An apparatus as in claim 1, wherein the kinetic condition setting unit sets information for generating the substrate particles.

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6. (PREVIOUSLY PRESENTED) An apparatus as in claim 1, wherein

each adsorbate particle is formed of atoms;

the information set by the kinetic condition setting unit includes information indicating whether the atoms of a respective adsorbate particle are static against a center of mass of the adsorbate particle; and

when the particle motion computing unit generates an adsorbate particle and the information set by the kinetic condition setting unit indicates that the atoms of the respective adsorbate particle are not static against the center of mass, the particle motion computing unit provides a random orientation to the atoms of the adsorbate particle.

7. (ORIGINAL) An apparatus as in claim 6, further comprising:

a display which allows a user to enter the information set by the kinetic condition setting unit.

8. (PREVIOUSLY PRESENTED) An apparatus as in claim 1, wherein

each adsorbate particle is formed of atoms;

the information set by the kinetic condition setting unit includes information indicating whether the atoms of a respective adsorbate particle are static against a center of mass of the adsorbate particle; and

when the particle motion computing unit generates an adsorbate particle and the information set by the kinetic condition setting unit indicates that the atoms of the respective adsorbate particle are not static against the center of mass, the particle motion computing unit provides an initial velocity to the atoms of the adsorbate particle.

9. (PREVIOUSLY PRESENTED) An apparatus as in claim 1, wherein, when generating an adsorbate particle, the particle motion computing unit provides a random direction within a cone pointed at a substrate and being centered at a point of generation of center of mass velocity of the adsorbate particle.

10. (CANCELED)

11.   (ORIGINAL) An apparatus as in claim 1, further comprising:

a display which displays the information set by the kinetic condition setting unit.

12.   (PREVIOUSLY PRESENTED) An apparatus for simulating phenomena of a particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source, the apparatus comprising:

an input device which allows a user to designate a region;

a kinetic condition setting unit which, for each adsorbate particle, sets the region designed by the user as a region indicating a position of the corresponding emission source; and

a particle motion computing unit which generates the adsorbate particles in accordance with the position of the corresponding emission source as indicated by the region designated by the user and computes motion of the generated adsorbate particles, to simulate phenomena of said particle formed of adsorbate particles and substrate particles.

13.   (ORIGINAL) An apparatus as in claim 12, wherein the input device is a display.

14.   (ORIGINAL) An apparatus as in claim 12, further comprising:

a display which displays the information set by the kinetic condition setting unit.

15.   (PREVIOUSLY PRESENTED) An apparatus as in claim 14, wherein the display shows the adsorbate particles generated by the particle motion computing unit and indicates the motion computed by the particle motion computing unit.

16.   (PREVIOUSLY PRESENTED) An apparatus for simulating phenomena of a particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source, the apparatus comprising:

a kinetic condition setting unit which sets information for defining kinetic conditions of the adsorbate particles wherein the information includes a position of a corresponding emission source, a temperature, a chemical composition of the particle, a region, a physical condition, a velocity of each atom forming the particle, and a direction; and

a particle motion computing unit which generates the adsorbate particles in accordance with the information set by the kinetic condition setting unit and the position of the corresponding emission source, and computes motion of the generated adsorbate particles, to

simulate phenomena of said particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source.

17.   (PREVIOUSLY PRESENTED) An apparatus as in claim 16, wherein

the adsorbate particles move towards the substrate particles,

the kinetic condition setting unit sets a region for defining an initial position of the adsorbate particles, and

the apparatus further comprises a display which displays the relationship between the region set by the kinetic condition setting unit and a region indicating a position of a substrate particle forming said particle formed of adsorbate particles and substrate particles.

18.   (PREVIOUSLY PRESENTED) An apparatus as in claim 17, wherein

the kinetic condition setting unit sets information for providing a direction of velocity to the adsorbate particles, and

the display shows the direction of velocity with respect to the region set by the kinetic condition setting unit and the region indicating the position of a respective substrate particle.

19.   (ORIGINAL) An apparatus as in claim 16, further comprising:

a display which displays the information set by the kinetic condition setting unit.

20.   (PREVIOUSLY PRESENTED) A computer-implemented method for simulating phenomena of a particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source, the method comprising the steps of:

setting information for defining a plurality of generation periods and a corresponding number of adsorbate particles to be generated during each generation period wherein the information includes a position of a corresponding emission source, a temperature, a chemical composition of the particle, a region, a physical condition , a velocity of each atom forming the particle, and a direction;

generating the adsorbate particles in accordance with the information set in the setting step and the position of the corresponding emission sources;

computing motion of the generated adsorbate; and

simulating phenomena of said particle formed of adsorbate particles and substrate particles in accordance with the computed motion.

21.   (CANCELED)

22.   (PREVIOUSLY PRESENTED) A computer-implemented method for simulating phenomena of a particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source, the method comprising the steps of:

setting, for each adsorbate particle, a region indicating a position of the corresponding emission source;

generating the adsorbate particles in accordance with the position of the corresponding emission source as indicated by the region set in the setting step;

computing motion of the generated adsorbate particles; and

simulating phenomena of said particle formed of adsorbate particles and substrate particles in accordance with the computed motion.

23.   (PREVIOUSLY PRESENTED) A method for simulating phenomena of a particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source, the method comprising:

setting information for defining kinetic conditions of the adsorbate particles wherein the information includes a position of a corresponding emission source, a temperature, a chemical composition of the particle, a region, a physical condition, a velocity of each atom forming the particle, and a direction;

displaying the set information;

generating the adsorbate particles in accordance with the set information and the positions of the corresponding emission sources; and

computing motion of the generated adsorbate particles, to simulate phenomena of said particle formed of adsorbate particles and substrate particles, each adsorbate particle having a corresponding emission source.

24.   (PREVIOUSLY PRESENTED) An apparatus for simulating phenomena of a particle formed with adsorbate particles, comprising:

a kinetic condition setting unit which sets information for defining kinetic conditions of the adsorbate particles wherein the information includes a position of a corresponding emission source, a temperature, a chemical composition of the particle, a region, a physical condition, a velocity of each atom forming the particle, and a direction; and

a particle motion computing unit which generates the adsorbate particles in accordance

with the information set by the kinetic condition setting unit and computes motion of the generated adsorbate particles, to simulate phenomena of said particle formed with adsorbate particles, each adsorbate particle having a corresponding emission source, wherein

for each adsorbate particle, the kinetic condition setting unit sets a region indicating a position of the corresponding emission source, and

the particle motion computing unit generates each adsorbate particle in accordance with the position of the corresponding emission source as indicated by the region set by the kinetic condition setting unit.

25.   (ORIGINAL) An apparatus as in claim 24, wherein the information set by the kinetic condition setting unit defines a plurality of generation periods and a corresponding number of adsorbate particles to be generated during each generation period by the particle motion computing unit.

26.   (PREVIOUSLY PRESENTED) An apparatus as in claim 24, wherein

said particle formed with adsorbate particles is formed with both adsorbate particles and substrate particles,

the information set by the kinetic condition setting unit includes information for defining kinetic conditions of the substrate particles, and

the particle motion computing unit generates the substrate particles before generating the adsorbate particles.

27.   (PREVIOUSLY PRESENTED) An apparatus as in claim 24, wherein

said particle formed with adsorbate particles is formed with both adsorbate particles and substrate particles,

each substrate particle includes a fixed particle and a temperature control particle,

the information set by the kinetic condition setting unit includes information for defining kinetic conditions of the fixed particle and the temperature control particle, and

the particle motion computing unit generates the fixed particle and the temperature control particle of each substrate particle in accordance with the information set by the kinetic condition setting unit.

28.   (ORIGINAL) An apparatus as in claim 24, further comprising:

a display which displays the information set by the kinetic condition setting unit.

29.   (PREVIOUSLY PRESENTED) An apparatus as in claim 24, wherein

each adsorbate particle includes a plurality of atoms;

the information set by the kinetic condition setting unit includes information indicating whether the atoms of a respective adsorbate particle are static against a center of mass of the adsorbate particle; and

when the particle motion computing unit generates an adsorbate particle and the information set by the kinetic condition setting unit indicates that the atoms of the respective adsorbate particle are not static against the center of mass, the particle motion computing unit provides a random orientation to the atoms of the adsorbate particle.

30.   (PREVIOUSLY PRESENTED) An apparatus as in claim 29, wherein, when the particle motion computing unit generates an adsorbate particle and the information set by the kinetic condition setting unit indicates that the atoms of the respective adsorbate particle are not fixed against center of mass, the particle motion computing unit provides an initial velocity to the atoms of the adsorbate particle.

31.   (PREVIOUSLY PRESENTED) An apparatus as in claim 24, wherein, when generating an adsorbate particle, the particle motion computing unit provides a random direction within a cone pointed at a substrate and being centered at a point of generation of center of mass velocity of the adsorbate particle.

32.   (CANCELED)